

MEMORANDUM

State of Alaska DEPARTMENT OF FISH AND GAME

TO: ☐ Roger D. Wadman
Region I Supervisor
Sport Fish Division

DATE : March 15, 1973

FROM: Mike McHugh
Fishery Biology
Sport Fish Division

SUBJECT: Petersen Lake Rehab

I substantially agree with the Petersen Lake-Petersen Creek management plan as developed many years ago. Using hatchery fry to augment a natural steelhead run in an area of (desperately) high freshwater recreational demand superficially seems to me to be a particularly desirable form of management considering the facilities available; i.e. a hatchery, an otherwise nearly useless lake, a stream on the road system which is ecologically suitable for the species proposed.

In concept, the current plan is good, using permanganate to neutralize the stream below the barrier falls to avoid mortality in the stream which has significant recreational pressure.

My initial objection to the project is with technical feasibility of the rehab itself. I am not convinced that a complete kill is likely to occur unless the lake remains hot for a long time period and I would not like to see this system develop into a periodic repetition project.

Greater skepticism exists with regard to the practical logistics of a permanganate neutralization of the stream. If the lake remains hot for several months and the stream is to be protected, then the stream will have to be treated for several months. With an autumn rehab, neutralization would occur well into freezing weather making any intended or unheated drip-feeder system unworkable. I am unaware of any source of funds for putting adequate personnel in the field for the winter?

Such a project should be considered by Program Review. In order to arrive at a sound decision, I feel that they would need the information suggested in the following outline:

1. Study rehab feasibility stressing

- A. Lake application in the infringing vegetative mat.
- B. Inlet application stressing spawning timing and utilization of spring areas by wintering fish.
- C. Duration of treatment.

If a rehab does appear feasible, the next step is:

2. Study permanganate neutralization feasibility including

- A. Bioassay of $KMnO_4$ required for neutralization using Petersen water and winter temperatures.
- B. Investigation and testing of actual mechanics of application in freezing conditions.
- C. Mortality study to show any effect of long-term $KMnO_4$ application at concentration found in 2(A.).

3. . Consideration of alternatives and costs

- A. Leave it alone as it now provides a lot of recreation which would be lost by cleaning out the stream, to hell with the lake.
- B. Rehab without neutralization, to hell with the stream.
- C. Plant SH smolt, utilizing Petersburg hatchery.
- C. Attempt biological-chemical control using the differential in life histories to reduce DV competition and predation, which would lead to another feasibility study.

Obviously, I have some hangups on this rehab proposal. I have absorbed some vehement flak about the first rehab and decimation of the stream without any significant benefits as a result. Now the stream is returning to productivity and getting increased recreational use in my observation. It is certainly my favorite stream on the road system and perhaps I cannot review it objectively. I am looking for a guarantee of rehab effectiveness and of neutralization effectiveness. I would like to see a preliminary application on a similar lake having encroaching bog shores but not in such a critical location; also a neutralization under comparable conditions. This is not a good stream for learning new techniques.

Before attempting a rehab, I feel that your smolt planting plan should be given a good try. Noting the limited steelheading available on the road system, we should consider going to a 1 per day SH limit with a closure for smolt protection or else a "one rainbow-SH per day" limit year around. When I fish the stream in late July or August we pick up 6" RB that are apparently not going out as they aren't smolted.

My familiarity with Petersen Lake is minimal, consisting of one pass over it on snowshoes in January several years ago and one test netting drop-off and pick-up without spending any time on the lake.

However, I did form the opinion that it isn't much of a lake for shore fishing and this road system has proven impractical for skiffs because of vandalism. Ice fishing potential is limited by distance to be hiked and by inadequate parking area during winter. The validity of these opinions could be determined during any pre-rehab studies.

Somewhat off the subject but near the creek, the grassflats area from timber to lagoon has a great deal of potential as a "Sunday afternoon" type of family

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recreation and picnic area. This area will undoubtedly vanish under housing or other development as the wetlands closer to Juneau is now doing. Does it seem reasonable to you to look into public acquisition of this land?

cc:Art Schmidt